[p.206]

241 Maguey (agave) Crab apples
Chayote *Zapote blanco*

The above list is but a portion of the total number of varieties cultivated by the Tarascans in other villages. Plants used in Cherán but [438] grown in other villages include onion, garlic, tomato (several types), chile (many kinds), sugarcane, sweetpotato, banana, lime, lemon, orange, guava, mamey, mango, watermelon, canteloup, avocado, *zapote negro*, and cherimoya.

TYPES OF FARM LANDS

311 The lands cultivated by the Cherán Tarascans all have soils almost exclusively composed of 134 volcanic ash or cinders. However, low-lying areas which receive materials washed from the higher ground are usually more fertile and in a few specially favored spots may be cultivated annually. As a general rule, however, lands are cultivated only in alternate years.

311 Cherán lands are of five main categories: (1) "Plains" or valley floors, which may include some gently sloping or rolling areas but which are relatively flat; (2) patches of sloping land capable of permanent cultivation; (3) small areas of level land, usually called *"joyas,"* consisting of small valleys, depressions in the midst of lava flows, which were not covered by lava, and the level depressions in the craters of cinder cones; (4) relatively level or gently sloping garden plots within the town; (5) temporary fields on the steeper slopes of the mountains.

[423] The so-called "plains" consist of several large areas (maps 2, 3), subdivided in numerous privately owned plots. Maize and wheat are 241 the principal crops grown. The "plains" are 311 cultivated in alternate years under supervision of the town government. Harvest dates are fixed by the town council; after the final date, the "plains" become community pasture. Fencing of individual plots is not permitted, nor is planting in consecutive years. Therefore, men who own land in only one "plain" plant only every other year. Consequently, everyone tries to have land in at least two "plains."

311 The largest "plain," usually referred to simply as *el plan*, is west of Cherán, extending from the foot of the slope below the town to the

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

252 Peanuts are often on sale on the streets.
262 They and cooked squash are the only refreshments accessible to the very poor. Generally
[435] about a handful may be purchased for 1 centavo.

Chilacayote is a member of the squash family with watery white flesh. It probably is closest to what we call pie melons in the United States. It is much liked. The young, immature fruits are boiled with a little milk and, if it can be afforded, a little cheese.

As mentioned previously, mature chilacayotes are eaten all year but mainly in the spring.
[251] If placed in the sun daily for some time during dry weather, they will keep for some months in storage. They are sometimes coated with ashes mixed in water before storage. To serve, they are cut in pieces and boiled. Usually,
[435] cooked pieces may be bought on the street for a centavo.

Atapákua is made of squash blossoms and sliced immature squash, cooked with chile and a little flour or maize dough for thickening.

Nopal (prickly pear) is used as a vegetable. The tender leaves are skinned, cut in small squares, boiled, and then usually fried very lightly in lard.

Squash greens (the tender tips of the runners on the vines), which are commonly eaten in many parts of Mexico, are rarely eaten in Cherán. An informant had "heard" that those people who did eat them boiled the greens, then cooked them lightly with lard.

Green beans are not eaten. Informants did not even know a name for them. Dried beans are boiled, usually with a very little salt. They are often not very well done because of the altitude. They are watery and tasteless to an outsider, although relished by the residents.
[134] They are scarce, as there are few suitable soils near Cherán and most beans are imported from the Lake Pátzcuaro region.

262 Fruits are eaten rather sparingly in season in accordance with the economic status of the family. Locally grown fruits are eaten rather more than imported fruits. Children and young people appear to eat rather more fruit than do adults. Nearly every Cherán lot will have at least a pear, peach, apple, or cherry tree. Tunas, the fruit of the prickly pear, are also eaten as fruit.

137 covered with pine and oak within the memory of living inhabitants. Increased cultivation of slopes and constant cutting for firewood and charcoal will soon destroy the greater part of the pine-oak remnants in the northern plateau.

132 **The escarpment zone.**—South of the Sierra lies a series of climatic types arranged in altitudinal sequence. The upper part of the escarpment (5,600 to 3,600 ft.) is characterized by a narrow belt of Cwa (*tierra templada*) climate, which is followed abruptly by the subhumid *tierra caliente* (below 3,600 feet), or Aw. Below 2,000 feet within the Tepalcatepec and Balsas Basins, a semiarid tropical climate (BSh) prevails.

137 The pine-oak association of the Sierra spills over onto the upper escarpment, but the subtropical *Pinus oocarpus* becomes the dominant pine. Between 4,600 and 3,600 feet, pines disappear, leaving an open oak forest mixed with subtropical and tropical plants of southern Mexico. At lower elevations the latter plants become dominant.[14]

SOILS

134 132 137 Three soil types, which tend to coincide with climate and vegetation, predominate in the Tarascan area: (1) a yellowish-brown leached soil of the upper mountain slopes (Cwb to Cwc, pine-fir cover); (2) a dark, fine sandy loam (t'upúri) of the lower slopes and basins in the Sierra (Cwb, oak-pine, probably grass vegetation); and (3) the reddish-brown clay soil (čaránda) of the lower altitudes (warm phase of Cwb, Cwa, broadleaf vegetation) around Lake Pátzcuaro, in the lower elevations of the northern plateau, and in the escarpment zone (map 6). Transitional and special soil types also occur; for instance, many of the Sierra soils are termed "charandosas," having a higher clay content than the t'upúri loams.

134 **Yellowish-brown soil.**—This soil develops in high altitudes under seasonally humid conditions

[14] The tropical vegetation of the escarpment is characterized by a great variety of genera and species. The most common plants include the milky-sapped trees and shrubs of the family Moraceae—comuchin (*Ficus padifolia*), siranda (*F. petiolaris*), saruma (*Cecropia mexicana*); the pod-bearing Mimosaceae—timbin (*Mimosa stipitata*), guaje (*Leucaena* sp.), huisache (*Acacia* sp.), tepehuaje (*Lysiloma* sp.), parota (*Enterolobium cyclocarpum*), timuche (*Pithecellobium lanceolatum*), guamuchil (*Pithecellobium dulce*), *Calliandra* sp.; the pod-bearing Caesalpiniaceae—habillo (*Cassia occidentalis*), cascalote (*Caesalpinia coriaria*), etc.; the edible fruit-bearing plants of the Annonaceae—chirimoya (*Annona cherimolia*); of the Lauraceae—ahuacate (*Persea americana*); of the Sapotaceae—chicozapote (*Achras sapota*), mamey (*Calocarpum mammosum*); of the Anacardiaceae—cirenelo, cupu (*Spondias mombin*); of the Myrtaceae—guayaba (*Psidium guayaba*); and the copal-bearing Burseraceae—copal (*Elaphrium jorullense*).

134 and fir-pine vegetation. It is the soil of the higher hillside maize plots in the Sierra; leached and infertile, it will produce crops for no longer than 4 or 5 years, after which the field is abandoned. The fine, sandy topsoil, however, is moisture retentive, and is therefore known as "tierra de humedad," in which crops can be planted 2 months before the rains.[13] Podzolic soils (uncultivated) probably occur above 10,000 feet in the fir forest.

T'upúri.—The most productive of the highland "humedad" soils is t'upúri. Like the yellowish-brown soil, the texture of the topsoil is extremely fine. (Analyzed as fine sandy loam: 56 percent fine sand, 23 percent silt, 21 percent clay, 1 percent coarse gravel.) The surface drys to a fine powder and acts as an insulator, preventing the evaporation of moisture from the soil beneath. Consequently, in April and May near the end of the dry season the t'upúri soil is well moist 3 inches below the surface. T'upúri usually occurs between 6,500 and 8,000 feet on both the lower slopes and in the basin plains. Being porous, the soil soaks up moisture rapidly, preventing serious sheet or gully erosion even on the steeper slopes. Generally, the basin t'upúri is more fertile than the yellowish-brown, the topsoil of the former having a high humus content (6 percent), a fair content of critical elements (e. g. 0.09 percent N), but a deficiency of lime (0.31 percent). Various subtypes of t'upúri occur, differences being based mainly on soil texture. At the base of slopes or on alluvial fans the topsoil is often partially composed of coarse volcanic cinder. Such soil is locally called "cascajo," or gravel. Other subtypes are characterized by an increase in clay content. These occur on the lower slopes, and are sometimes referred to as "tierra charandosa."

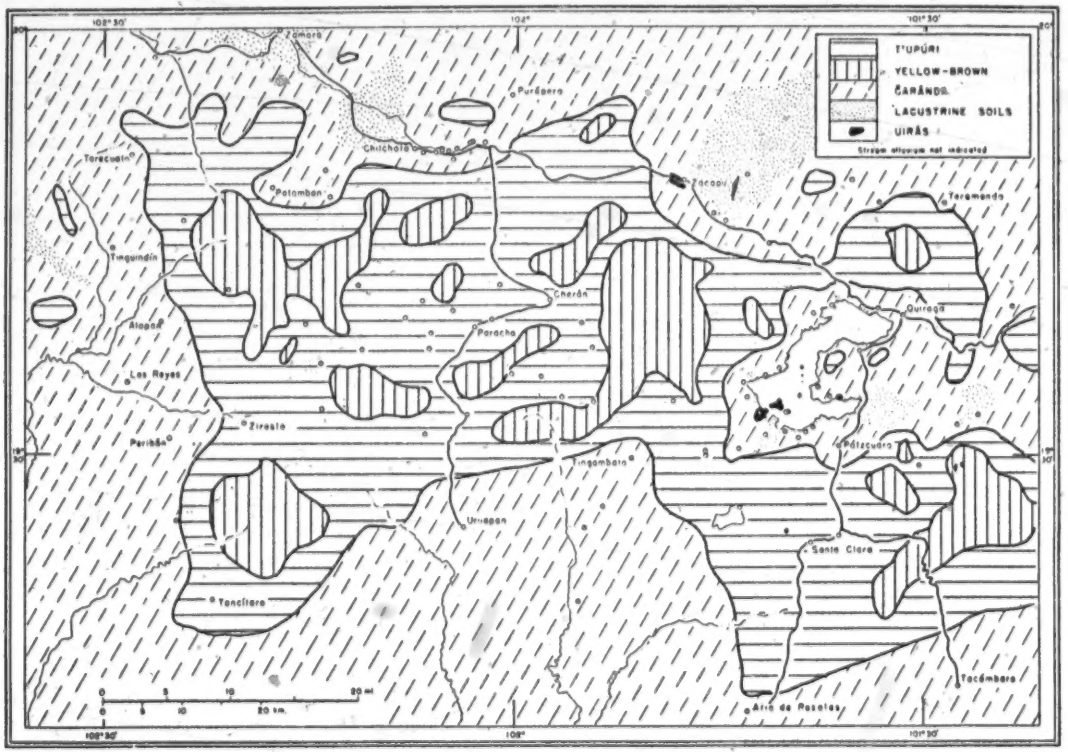
Čarándа.—This is a reddish-brown clay soil, which prevails below 6,500 feet and develops from the spheroidal weathering of volcanic rock under warm summer and mild winter temperatures and a cover of broadleaf plants. (Textural content: 39 percent sand, 26 percent silt, 35 percent clay.)

[Text continues top of p. 11a — Analysis]

[13] Surface soil samples (to a depth of 25 cm. below surface) were taken by the writer in the Sierra and Lake areas and were analyzed by the Comisión Nacional de Irrigación, Dirección General de Agroeconómica, México, D. F. Texturally the highland yellow-brown soils are sandy loams, (60 percent fine sand, 20 percent clay, 20 percent silt, are highly water-retentive (30 percent), and are low in humus (4 to 10 percent). All soils analyzed (including t'upúri and čarándа types) were low in lime content (0.24 to 0.34 percent), and slightly alkaline to alkaline (pH values: yellow-brown mountain soils, 7.32 to 7.34; t'upúri, 7.44 to 7.71; čarándа, 7.21 to 7.42; uirás, 8.05 to 8.13). Since profiles were not determined, classification according to world soil groups is not possible at this time.

134

4: West K-5 (1946) 1948 P. 107 NU34 Tarasco NU34



MAP 6.—Soil types in the modern Tarascan area. Data from field notes.

134 Large cracks occur in the soil surface during the months of March and April, and moisture is evaporated from a depth of many inches. Consequently čaránda is a "temporal" soil, i. e., it can be planted only after the rains begin. Because of its clayey texture, it erodes easily once the plant cover is stripped and the soil structure is destroyed. The cultivated slopes around Lake Pátzcuaro, for example, are one of the worst-eroded agricultural areas of Mexico. Wherever čaránda soils occur, the surface is scarred by gullies, which are becoming a characteristic landscape feature in the low areas surrounding the Sierra.

134 241 **Minor soil types.**—Among the most fertile in the Tarascan area are a few minor soil types. These include the alluvium in La Cañada and the lacustrine deposits around the shores of Lake Pátzcuaro and within the recently desiccated Zacapu Basin. Containing abundant organic
[Text continues top of P. 11b—Analyst]

TARASCAN
POPULATION

THE RECESSION OF NATIVE SPEECH

191 178 171 One of the outstanding developments in Tarascan history has been the drastic areal recession of indigenous speech. Today the territory in which Tarascan (P'orépeča) is spoken represents only one-fifteenth of its pre-Conquest extent. The pre-Spanish linguistic area (discussed by Brand, 1944) included most of the present State of Michoacán, except the Pacific slope of the Sierra Madre del Sur between Colima and the lower Balsas (map 7). The political limits of the Tarascan state, however, extended beyond the language boundary: in the west into Jalisco, in the south to the Pacific, and in the north to the Bajío of Guanajuato (Brand, 1944; cf. Stanislawski, 1947 a). The Tarascan cultural core centered in the north-central part of the Empire, comprising the Lake Pátzcuaro-Cuitzeo area and the pine forests of the Sierra and the upper escarpment zone (Stanislawski, 1947 a). Tarascans extended their speech southward into the *tierra caliente* (basins of the Tepalcatepec and Balsas) by colonization from the highlands during the 14th and early 15th centuries. Likewise, the P'orépeča settlements around the eastern end of Lake Chapala and south thereof (Mazamitla) appear to have been 15th-century colonies. Within the

191 563 pre-Conquest area various islands of foreign tongues existed; these represented colonies settled with permission of Tarascan chiefs. There were
[Text continues bottom of P. 11b—Analyst]

134 material and essential chemical elements, most
[241] of these soils are cropped annually without fallow. A peculiar soil type, called *uirás*, occurs near the edge of a lava flow on the southwestern shore of Lake Pátzcuaro, on Jarácuaro Island, and near Ihuatzio. The subsoil is a fibery-textured white clay (35.4 percent fine clay), from which the whitish-gray adobe bricks of Jarácuaro and Ihuatzio are made; the topsoil, when mixed with lacustrine deposits (as on Jarácuaro Island), forms a fertile loam extremely high in organic matter (nearly 5 percent) and calcium carbonate (7.7 percent). On the other hand, when the parent material lies close to the surface (as around Arócutin), the *uirás* is one of the poorest soils in the vicinity.[16]

[16] A similar soil type occurs at the edge of a lava flow along the highway on the outskirts of Zacapu. The relation between vulcanism and the formation of *uirás* is not clear.

TARASCAN POPULATION

191 three inclusions of Matlaltzinca or Pirinda (Otomí
563 stock): (1) the largest, near present Morelia, from Undameo northeast to Charo, (2) at Taimeo, southeast of Lake Cuitzeo, and (3) at Huetamo near the Balsas.[17] Moreover, a group of Apaneca colonists lived at Guayameo, near Sirándaro on the Balsas, and an islet of Teco occurred between Tancítaro and Uruapan.[18]

161 Various factors contributed to the areal retrogression of Tarascans during the Spanish colonial and postcolonial periods. One factor was actual decrease of Indian population caused mainly by European diseases. The population of some
[161] areas was further weakened or depleted by migration of Tarascans as laborers to distant mining and agricultural centers. Moreover, Spanish and mulatto settlement within the indigenous area was a powerful force of hispanicization; wherever stock-raising estancias or sugar haciendas were established, native speech slowly disappeared. Conversely, in those areas shunned
[91] by Spanish settlers, Tarascan has been preserved to this day.

177 The most serious shock which the indigenous
164 cultures suffered from Spanish contact was the frightful toll taken by the contagious European
161 diseases that became epidemic throughout central

[TEXT CONTINUES BOTTOM P. 12-b --ANALYST]

[17] Data obtained from the following Relaciones Geográficas in Mus. Nac., leg. 102: Rel. de Necotlán and Rel. de Cuseo; Mus. Nac., leg. 99, Rel. de Charo Matlalzingo.

[18] Mus. Nac., leg. 102, Rel. de Sirándaro y Guayameo; Ponce Relación, 1572, vol. 1, p. 131; Mus. Nac., Col. de Gómez Orozco, vol. 1, Rel. de Tancítaro.